

AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph at page 2, line 1 with the following:

In older cellular systems, each base station typically services one overall coverage area called a site. One or more omni-directional antennas service the entire site area. But in more modern cellular systems, the site area may be divided up into smaller areas called sector cells or simply cells. One or more antennas service each sector cell. Fig. 1A illustrates a sector cell antenna beam. Because the entire site area need not be covered and the sector antenna(s) need only reach mobiles in one sector, sector transmissions can be at a lower power.

Please replace the paragraph at page 5, line 22 with the following:

But in a preferred, non-limiting, example embodiment, a specific antenna beam at the target base station is determined for the mobile station connection (before link set-up) using uplink measurement information from the target base station. As a result, the handover radio link between the desired antenna beam and the mobile station. Reconfiguration of the handover link is unnecessary ~~is set up from the start~~.

Please replace the paragraph at page 5, line 24 with the following:

Several advantages flow from the present invention. First, because the handover radio link is established specifically for a narrow antenna beam, the radio transmission is more efficient. Second, there is less interference spread in the system and less transmit power required to communicate with the mobile station. Third, less interference and transmit power ultimately results in increased overall system performance. Fourth, radio resource management algorithms may be based upon resources allocated per antenna beam rather than resources allocated for the entire sector cell. As a result, the RNC can better control the resources in the system. For example, one part of the cell (one or a few beams) may be overloaded while other parts are virtually unloaded. This situation can not be detected by sector measurements alone since they

will show some kind of cell average. So, if the load control is beam-level based, better granularity and higher capacity is achieved. Fifth, because the radio link is established directly to the most favorable antenna beam for the mobile to receive information from the target base station, a higher quality signal connection is achieved. With the preferred example embodiment that does not require link reconfiguration, the handover radio link is established faster using less signaling over the radio air interface than in typical handover procedures. The load on the radio network, (e.g., the RNC in WCDMA), will be lower because the reconfiguration uses computing power in the network.

Please replace the paragraph at page 9, line 24 with the following:

Although the present invention may be applied to any handover procedure including both hard handover and soft handover, a soft handover situation as set forth in the context of a third generation, WCDMA, cellular system (e.g., 3GPP) is described below for purposes of illustration. A complete description of 3GPP handover procedures and parameters may be found in 3GPP Technical Specification (TS) 25.433 UTRAN Iub Interface NBAP signaling and TS 25.423 UTRAN Iur Interface RNSAP signaling. Signal quality measurements involved in handover decision making procedures are described in TS 25.215 Physical Layer Measurements, and TS 25.214 Physical layer procedures (FDD) describe the power control aspects relating to handover. In addition, radio resource control operations such as radio link addition/removal, active set update, etc., are described in TS 25.331 Radio Resource Control (RRC) Protocol Specification.

Please replace the paragraph at page 10, line 24 with the following:

When a pilot signal quality received from a neighboring base station, in this example base station BS2, exceeds a predetermined threshold or other criterion/criteria for handover, the

handover controller 16 identifies that neighboring base station sector cell as a target cell for which a new radio link should be established (step S2). The handover controller 16 also determines whether the target sector cell employs one or more adaptive antennas ~~as support new~~ that use narrow antenna beams for supporting traffic communications over the radio interface.

The handover is performed to the target sector cell, in this example sector S4, taking into account the cell location of the mobile station (step S3). (Typically, the handover controller 16 is not aware of the mobile's current or predicted location in the target cell when the new radio link needs to be established. But this problem is solved by the present invention as explained below.)

A new radio link is ultimately established for the handover to the antenna beam best-suited or otherwise desired to support this handover connection. In the example Fig. 5, that best-suited antenna beam is beam X which covers the sector 4 cell location where the mobile station currently is or is expected to be. Alternatively, the sector 4 beam may be selected which is closest to where the mobile currently is or is expected to be.